

ABSTRACT OF THE DISCLOSURE

A scale (104) generates a periodical light-intensity distribution pattern having a predetermined pitch (P) with irradiation of emission light from a light source (102). A plurality of light-receiving element groups are shifted relative to the scale to generate phase signals having predetermined phase differences. A plurality of light receiving elements are adjacently positioned to have the same phase to form each light-receiving element group. Area centers of gravity (28,29; 38,39) on a phase axis (109) of a plurality of the light-receiving element groups having a predetermined relationship in phase difference are made coincident with each other.